



Full wwPDB X-ray Structure Validation Report ⓘ

May 28, 2020 – 10:22 pm BST

PDB ID : 2JJD
Title : Protein Tyrosine Phosphatase, Receptor Type, E isoform
Authors : Elkins, J.M.; Ugochukwu, E.; Alfano, I.; Barr, A.J.; Bunkoczi, G.; King, O.N.F.; Filippakopoulos, P.; Savitsky, P.; Salah, E.; Pike, A.; Johansson, C.; Das, S.; Burgess-Brown, N.A.; Gileadi, O.; von Delft, F.; Arrowsmith, C.H.; Bountra, C.; Edwards, A.M.; Knapp, S.
Deposited on : 2008-03-31
Resolution : 3.20 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Xtriage (Phenix) : 1.13
EDS : 2.11
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.11

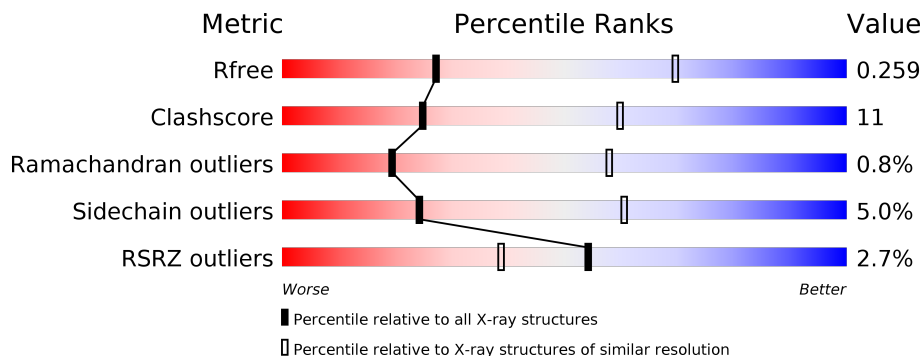
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.20 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1133 (3.20-3.20)
Clashscore	141614	1253 (3.20-3.20)
Ramachandran outliers	138981	1234 (3.20-3.20)
Sidechain outliers	138945	1233 (3.20-3.20)
RSRZ outliers	127900	1095 (3.20-3.20)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	599	<p>2% 70% 18% • 10%</p>
1	B	599	<p>3% 71% 17% • 10%</p>
1	C	599	<p>2% 70% 19% • 10%</p>
1	D	599	<p>3% 71% 18% • 10%</p>
1	E	599	<p>2% 74% 15% • 10%</p>
1	F	599	<p>3% 72% 16% • 10%</p>

2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 23750 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called RECEPTOR-TYPE TYROSINE-PROTEIN PHOSPHATASE EPSILON.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	537	Total 3973	C 2574	N 689	O 689	S 21	0	0	0
1	B	541	Total 3972	C 2581	N 692	O 677	S 22	0	0	0
1	C	541	Total 3970	C 2582	N 690	O 676	S 22	0	0	0
1	D	539	Total 3936	C 2554	N 690	O 671	S 21	0	0	0
1	E	541	Total 3950	C 2569	N 688	O 672	S 21	0	0	0
1	F	542	Total 3937	C 2560	N 692	O 664	S 21	0	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	581	GLY	GLU	cloning artifact	UNP P23469
B	581	GLY	GLU	cloning artifact	UNP P23469
C	581	GLY	GLU	cloning artifact	UNP P23469
D	581	GLY	GLU	cloning artifact	UNP P23469
E	581	GLY	GLU	cloning artifact	UNP P23469
F	581	GLY	GLU	cloning artifact	UNP P23469

- Molecule 2 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	D	2	Total 2	Cl 2	0	0
2	E	2	Total 2	Cl 2	0	0
2	B	3	Total 3	Cl 3	0	0

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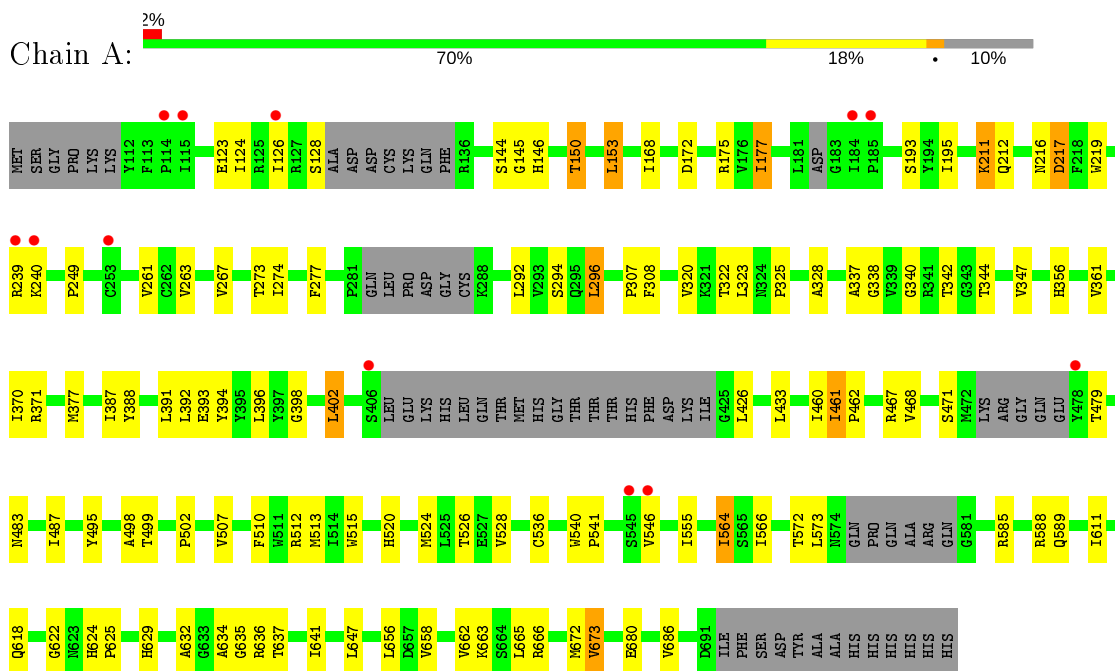
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	C	1	Total 1	Cl 1	0	0
2	A	2	Total 2	Cl 2	0	0
2	F	2	Total 2	Cl 2	0	0

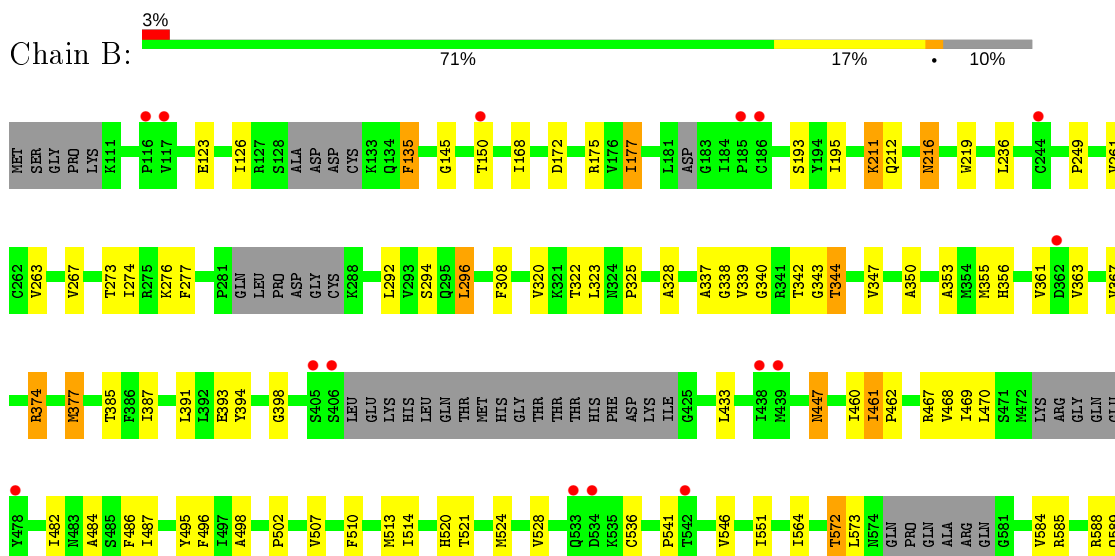
3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: RECEPTOR-TYPE TYROSINE-PROTEIN PHOSPHATASE EPSILON

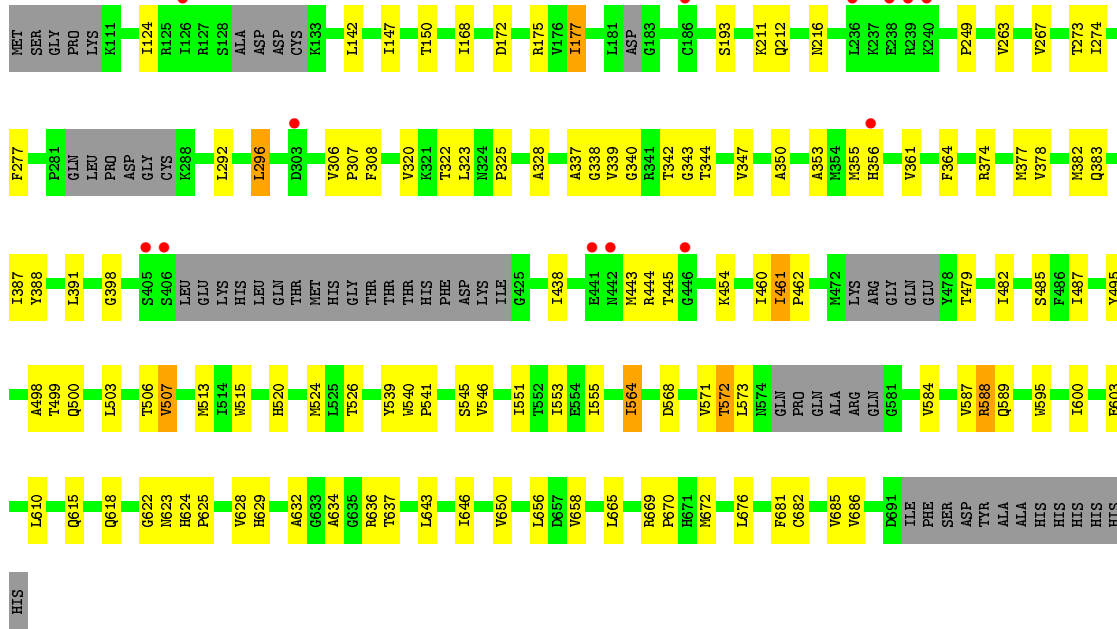


• Molecule 1: RECEPTOR-TYPE TYROSINE-PROTEIN PHOSPHATASE EPSILON

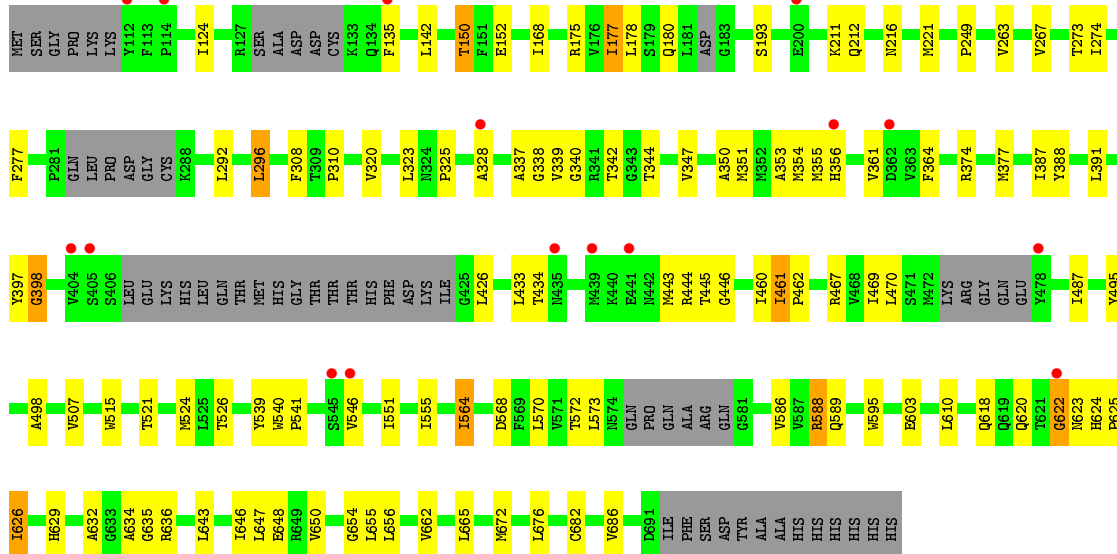




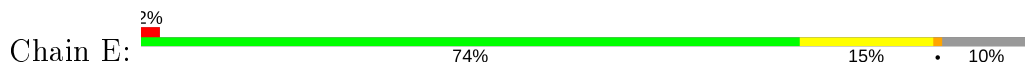
• Molecule 1: RECEPTOR-TYPE TYROSINE-PROTEIN PHOSPHATASE EPSILON

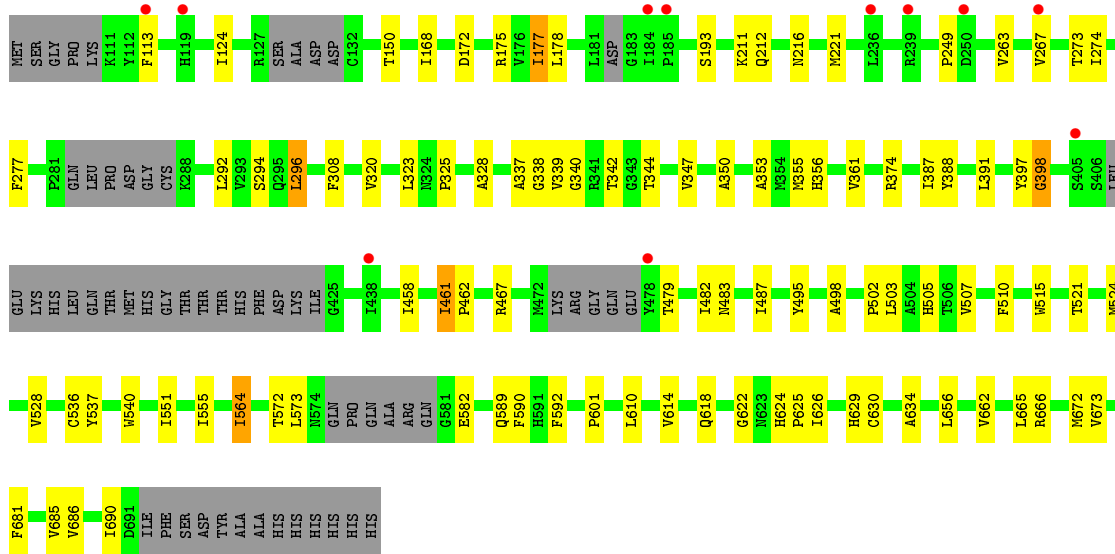


• Molecule 1: RECEPTOR-TYPE TYROSINE-PROTEIN PHOSPHATASE EPSILON

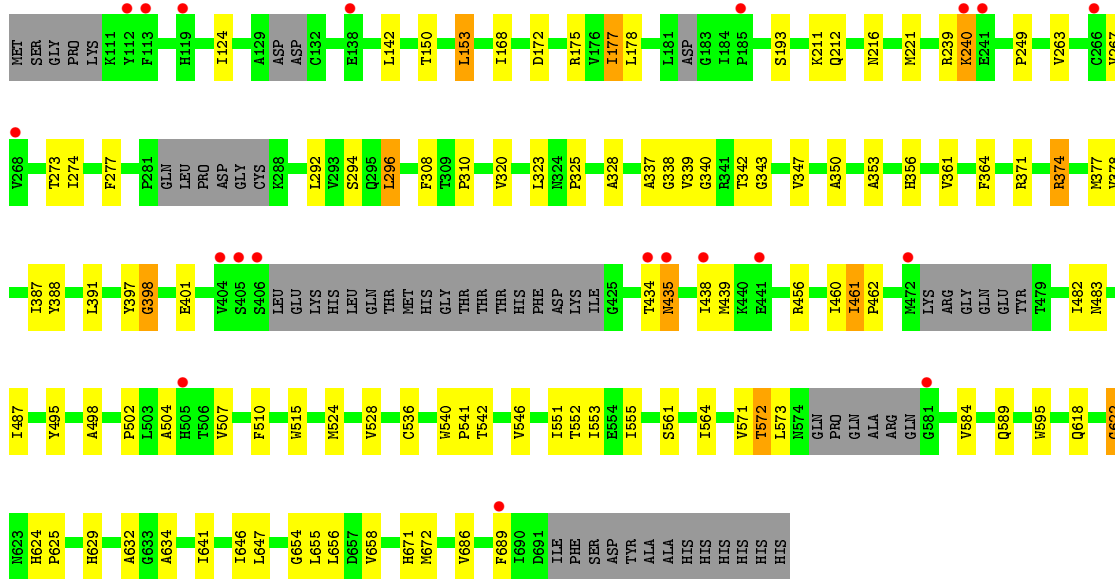


• Molecule 1: RECEPTOR-TYPE TYROSINE-PROTEIN PHOSPHATASE EPSILON





● Molecule 1: RECEPTOR-TYPE TYROSINE-PROTEIN PHOSPHATASE EPSILON



4 Data and refinement statistics i

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	126.02Å 123.62Å 219.12Å 90.00° 91.13° 90.00°	Depositor
Resolution (Å)	218.22 – 3.20 34.65 – 3.20	Depositor EDS
% Data completeness (in resolution range)	98.7 (218.22-3.20) 98.8 (34.65-3.20)	Depositor EDS
R_{merge}	0.14	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.62 (at 3.18Å)	Xtriage
Refinement program	REFMAC 5.4.0066	Depositor
R, R_{free}	0.221 , 0.256 0.226 , 0.259	Depositor DCC
R_{free} test set	5498 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å ²)	76.1	Xtriage
Anisotropy	0.555	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 95.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.44$, $\langle L^2 \rangle = 0.27$	Xtriage
Estimated twinning fraction	0.026 for k,h,-l 0.027 for -k,-h,-l 0.038 for h,-k,-l	Xtriage
F_o, F_c correlation	0.90	EDS
Total number of atoms	23750	wwPDB-VP
Average B, all atoms (Å ²)	62.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.98% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section:
CL

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.49	0/4072	0.59	1/5570 (0.0%)
1	B	0.48	0/4074	0.58	0/5575
1	C	0.47	0/4071	0.57	0/5570
1	D	0.44	0/4036	0.55	0/5522
1	E	0.49	0/4051	0.58	0/5544
1	F	0.47	0/4037	0.56	0/5525
All	All	0.47	0/24341	0.57	1/33306 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	C	0	1
1	F	0	1
All	All	0	2

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
1	A	673	VAL	N-CA-C	-5.12	97.19	111.00

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	622	GLY	Peptide

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Mol	Chain	Res	Type	Group
1	F	622	GLY	Peptide

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3973	0	3575	91	0
1	B	3972	0	3557	73	0
1	C	3970	0	3551	94	0
1	D	3936	0	3491	88	0
1	E	3950	0	3506	68	0
1	F	3937	0	3491	74	0
2	A	2	0	0	0	0
2	B	3	0	0	0	0
2	C	1	0	0	0	0
2	D	2	0	0	0	0
2	E	2	0	0	0	0
2	F	2	0	0	0	0
All	All	23750	0	21171	484	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 11.

All (484) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:656:LEU:HD11	1:E:686:VAL:HG11	1.27	1.17
1:C:656:LEU:CD1	1:C:686:VAL:HG11	1.86	1.05
1:D:656:LEU:HD11	1:D:686:VAL:HG11	1.41	1.02
1:F:656:LEU:HD11	1:F:686:VAL:HG11	1.46	0.97
1:C:564:ILE:HG21	1:C:610:LEU:HD13	1.44	0.96
1:C:665:LEU:HD22	1:C:672:MET:HE3	1.44	0.96
1:A:393:GLU:OE2	1:A:663:LYS:NZ	1.98	0.95
1:A:656:LEU:HD11	1:A:686:VAL:HG11	1.47	0.95
1:B:656:LEU:CD1	1:B:686:VAL:HG11	1.98	0.91
1:C:656:LEU:HD12	1:C:686:VAL:HG11	1.54	0.90

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:656:LEU:HD11	1:E:686:VAL:CG1	2.01	0.89
1:C:564:ILE:CG2	1:C:610:LEU:HD13	2.02	0.88
1:C:665:LEU:HD22	1:C:672:MET:CE	2.03	0.88
1:B:656:LEU:HD11	1:B:686:VAL:HG11	1.56	0.86
1:E:551:ILE:HD13	1:E:573:LEU:HD13	1.59	0.85
1:C:551:ILE:HD13	1:C:573:LEU:HD13	1.59	0.85
1:E:634:ALA:HB1	1:E:672:MET:HA	1.59	0.83
1:E:624:HIS:HB3	1:E:625:PRO:HD2	1.59	0.82
1:B:524:MET:HE2	1:B:589:GLN:NE2	1.95	0.82
1:C:656:LEU:HD11	1:C:686:VAL:HG11	1.61	0.81
1:B:340:GLY:O	1:B:344:THR:HG23	1.81	0.80
1:E:339:VAL:HG13	1:E:374:ARG:HH11	1.46	0.80
1:A:153:LEU:HD13	1:A:175:ARG:NH1	1.97	0.79
1:B:541:PRO:HB3	1:B:546:VAL:HG13	1.63	0.79
1:B:634:ALA:HB1	1:B:672:MET:HA	1.65	0.79
1:D:524:MET:HE2	1:D:589:GLN:NE2	1.98	0.79
1:D:361:VAL:HG21	1:D:391:LEU:HD13	1.65	0.78
1:D:665:LEU:HD22	1:D:672:MET:CE	2.13	0.78
1:C:443:MET:HE3	1:C:461:ILE:HG22	1.66	0.78
1:F:656:LEU:CD1	1:F:686:VAL:HG11	2.13	0.77
1:A:524:MET:HG3	1:A:629:HIS:CE1	2.19	0.77
1:F:487:ILE:HD13	1:F:672:MET:HE2	1.68	0.76
1:D:340:GLY:O	1:D:344:THR:HG23	1.85	0.76
1:C:681:PHE:O	1:C:685:VAL:HG23	1.86	0.76
1:D:551:ILE:HD13	1:D:573:LEU:HD13	1.66	0.75
1:B:524:MET:HG3	1:B:629:HIS:NE2	2.01	0.74
1:F:495:TYR:OH	1:F:618:GLN:HG2	1.88	0.74
1:D:521:THR:HB	1:D:626:ILE:HG23	1.69	0.73
1:C:339:VAL:HG13	1:C:374:ARG:HH11	1.53	0.73
1:D:656:LEU:CD1	1:D:686:VAL:HG11	2.17	0.73
1:B:123:GLU:HA	1:B:126:ILE:HD12	1.72	0.72
1:E:340:GLY:O	1:E:344:THR:HG23	1.90	0.71
1:F:634:ALA:HB1	1:F:672:MET:HA	1.71	0.71
1:B:361:VAL:HG21	1:B:391:LEU:HD13	1.72	0.71
1:B:393:GLU:OE2	1:B:663:LYS:NZ	2.24	0.71
1:B:624:HIS:HB3	1:B:625:PRO:HD2	1.72	0.70
1:B:551:ILE:HD13	1:B:573:LEU:HD13	1.74	0.69
1:E:150:THR:HG22	1:E:172:ASP:OD2	1.92	0.69
1:C:551:ILE:CD1	1:C:573:LEU:HD13	2.22	0.69
1:C:551:ILE:HD13	1:C:573:LEU:CD1	2.23	0.68
1:B:150:THR:HG22	1:B:172:ASP:OD2	1.93	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:325:PRO:HG2	1:C:328:ALA:HB2	1.75	0.67
1:E:656:LEU:CD1	1:E:686:VAL:HG11	2.16	0.67
1:F:572:THR:HG23	1:F:584:VAL:HG23	1.77	0.67
1:F:325:PRO:HG2	1:F:328:ALA:HB2	1.77	0.67
1:B:325:PRO:HG2	1:B:328:ALA:HB2	1.76	0.67
1:D:624:HIS:HB3	1:D:625:PRO:HD2	1.76	0.67
1:F:347:VAL:HG11	1:F:387:ILE:HD13	1.76	0.67
1:A:338:GLY:C	1:A:342:THR:HG21	2.15	0.67
1:A:624:HIS:HB3	1:A:625:PRO:HD2	1.77	0.67
1:D:656:LEU:HD11	1:D:686:VAL:CG1	2.23	0.67
1:D:325:PRO:HG2	1:D:328:ALA:HB2	1.75	0.66
1:F:153:LEU:HD13	1:F:175:ARG:NH1	2.09	0.66
1:F:624:HIS:HB3	1:F:625:PRO:HD2	1.77	0.66
1:F:524:MET:HE2	1:F:589:GLN:NE2	2.09	0.66
1:F:150:THR:HG22	1:F:172:ASP:OD2	1.96	0.66
1:F:461:ILE:HG23	1:F:462:PRO:HD2	1.79	0.65
1:C:443:MET:CE	1:C:461:ILE:HG22	2.27	0.65
1:A:153:LEU:HD13	1:A:175:ARG:HH11	1.62	0.65
1:D:460:ILE:HD12	1:D:632:ALA:HB1	1.77	0.65
1:E:325:PRO:HG2	1:E:328:ALA:HB2	1.78	0.64
1:E:347:VAL:HG11	1:E:387:ILE:HD13	1.79	0.64
1:E:665:LEU:HD22	1:E:672:MET:HE2	1.80	0.64
1:A:325:PRO:HG2	1:A:328:ALA:HB2	1.77	0.64
1:B:338:GLY:C	1:B:342:THR:HG21	2.17	0.64
1:A:347:VAL:HG11	1:A:387:ILE:HD13	1.78	0.64
1:D:487:ILE:HD12	1:D:498:ALA:HB2	1.79	0.64
1:F:641:ILE:HD12	1:F:672:MET:HE1	1.80	0.64
1:D:618:GLN:NE2	1:D:626:ILE:HG12	2.12	0.63
1:A:624:HIS:HB3	1:A:625:PRO:CD	2.28	0.63
1:C:361:VAL:HG21	1:C:391:LEU:HD13	1.81	0.63
1:C:515:TRP:NE1	1:C:573:LEU:HD22	2.14	0.63
1:C:564:ILE:HG21	1:C:610:LEU:CD1	2.23	0.63
1:F:338:GLY:C	1:F:342:THR:HG21	2.18	0.63
1:A:402:LEU:HD23	1:A:656:LEU:HB3	1.81	0.62
1:B:296:LEU:HD13	1:B:320:VAL:HG22	1.80	0.62
1:B:460:ILE:HD12	1:B:632:ALA:HB1	1.80	0.62
1:F:339:VAL:HG13	1:F:374:ARG:HH11	1.63	0.62
1:B:347:VAL:HG11	1:B:387:ILE:HD13	1.80	0.62
1:B:528:VAL:HG13	1:B:536:CYS:O	1.99	0.62
1:D:296:LEU:HD13	1:D:320:VAL:HG22	1.81	0.62
1:D:338:GLY:C	1:D:342:THR:HG21	2.20	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:545:SER:HA	1:C:553:ILE:O	2.00	0.62
1:C:634:ALA:HB1	1:C:672:MET:HA	1.81	0.62
1:C:338:GLY:C	1:C:342:THR:HG21	2.20	0.62
1:E:338:GLY:C	1:E:342:THR:HG21	2.20	0.61
1:A:680:GLU:HG2	1:C:147:ILE:HD12	1.82	0.61
1:D:347:VAL:HG11	1:D:387:ILE:HD13	1.83	0.61
1:C:168:ILE:HD13	1:C:337:ALA:HB1	1.82	0.61
1:C:347:VAL:HG11	1:C:387:ILE:HD13	1.81	0.61
1:D:249:PRO:HG2	1:D:263:VAL:HG23	1.82	0.61
1:D:524:MET:HG3	1:D:629:HIS:NE2	2.16	0.61
1:E:551:ILE:CD1	1:E:573:LEU:HD13	2.28	0.60
1:C:520:HIS:HA	1:C:587:VAL:HG22	1.83	0.60
1:E:296:LEU:HD13	1:E:320:VAL:HG22	1.84	0.60
1:B:168:ILE:HD13	1:B:337:ALA:HB1	1.82	0.60
1:B:461:ILE:HG23	1:B:462:PRO:HD2	1.82	0.60
1:B:249:PRO:HG2	1:B:263:VAL:HG23	1.83	0.60
1:E:564:ILE:HG21	1:E:610:LEU:HD13	1.83	0.60
1:A:249:PRO:HG2	1:A:263:VAL:HG23	1.84	0.60
1:A:524:MET:HG3	1:A:629:HIS:NE2	2.17	0.60
1:E:249:PRO:HG2	1:E:263:VAL:HG23	1.82	0.60
1:A:433:LEU:CD1	1:A:662:VAL:HG11	2.31	0.59
1:B:502:PRO:HG3	1:B:510:PHE:CD1	2.36	0.59
1:E:665:LEU:HD22	1:E:672:MET:CE	2.33	0.59
1:C:628:VAL:CG1	1:C:637:THR:HG23	2.33	0.59
1:A:338:GLY:O	1:A:342:THR:HG21	2.01	0.59
1:A:635:GLY:N	1:A:672:MET:O	2.36	0.59
1:D:665:LEU:HD22	1:D:672:MET:HE2	1.82	0.59
1:F:168:ILE:HD13	1:F:337:ALA:HB1	1.85	0.59
1:D:551:ILE:CD1	1:D:573:LEU:HD13	2.32	0.58
1:F:296:LEU:HD13	1:F:320:VAL:HG22	1.85	0.58
1:F:249:PRO:HG2	1:F:263:VAL:HG23	1.85	0.58
1:D:124:ILE:CD1	1:D:388:TYR:HB3	2.34	0.58
1:E:175:ARG:NH2	1:E:177:ILE:HG22	2.19	0.58
1:B:572:THR:HG23	1:B:584:VAL:HG23	1.85	0.58
1:A:524:MET:HE2	1:A:540:TRP:CZ3	2.38	0.58
1:C:249:PRO:HG2	1:C:263:VAL:HG23	1.86	0.58
1:D:487:ILE:HD13	1:D:672:MET:CE	2.33	0.58
1:B:487:ILE:HD13	1:B:672:MET:HE2	1.85	0.57
1:B:175:ARG:NH2	1:B:177:ILE:HG22	2.19	0.57
1:C:306:VAL:HG13	1:C:382:MET:HG2	1.86	0.57
1:A:461:ILE:HG23	1:A:462:PRO:HD2	1.85	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:340:GLY:O	1:C:344:THR:HG23	2.03	0.57
1:C:541:PRO:HB3	1:C:546:VAL:HG13	1.85	0.57
1:D:175:ARG:NH2	1:D:177:ILE:HG22	2.19	0.57
1:D:634:ALA:HB1	1:D:672:MET:HA	1.85	0.57
1:A:296:LEU:HD13	1:A:320:VAL:HG22	1.87	0.57
1:E:624:HIS:HB3	1:E:625:PRO:CD	2.33	0.57
1:E:681:PHE:O	1:E:685:VAL:HG23	2.05	0.57
1:C:175:ARG:NH2	1:C:177:ILE:HG22	2.20	0.57
1:A:168:ILE:HD13	1:A:337:ALA:HB1	1.87	0.56
1:D:654:GLY:O	1:D:655:LEU:HD23	2.04	0.56
1:E:361:VAL:HG21	1:E:391:LEU:HD13	1.87	0.56
1:E:524:MET:HG3	1:E:629:HIS:CE1	2.40	0.56
1:C:553:ILE:HD13	1:C:571:VAL:HG13	1.88	0.56
1:F:646:ILE:HD13	1:F:658:VAL:HG22	1.87	0.56
1:B:618:GLN:NE2	1:B:624:HIS:O	2.39	0.56
1:D:515:TRP:NE1	1:D:573:LEU:HD22	2.21	0.56
1:F:175:ARG:NH2	1:F:177:ILE:HG22	2.21	0.56
1:B:447:ASN:N	1:B:447:ASN:HD22	2.03	0.56
1:E:168:ILE:HD13	1:E:337:ALA:HB1	1.86	0.56
1:A:495:TYR:OH	1:A:618:GLN:HG2	2.06	0.56
1:A:515:TRP:NE1	1:A:573:LEU:HD22	2.21	0.55
1:A:322:THR:HG22	1:A:323:LEU:HD23	1.87	0.55
1:C:296:LEU:HD13	1:C:320:VAL:HG22	1.87	0.55
1:A:175:ARG:NH2	1:A:177:ILE:HG22	2.21	0.55
1:A:402:LEU:CD2	1:A:656:LEU:HD22	2.37	0.55
1:D:168:ILE:HD13	1:D:337:ALA:HB1	1.89	0.55
1:A:468:VAL:HG11	1:A:513:MET:HG3	1.87	0.55
1:A:665:LEU:HD22	1:A:672:MET:CE	2.36	0.55
1:A:520:HIS:NE2	1:A:585:ARG:HD3	2.22	0.54
1:B:468:VAL:HG22	1:B:486:PHE:CE2	2.43	0.54
1:C:524:MET:HG3	1:C:629:HIS:CE1	2.43	0.54
1:A:499:THR:HG23	1:A:629:HIS:HB3	1.90	0.54
1:C:682:CYS:O	1:C:686:VAL:HG23	2.07	0.54
1:C:628:VAL:HG12	1:C:637:THR:HG23	1.90	0.54
1:B:469:ILE:O	1:B:470:LEU:HD23	2.08	0.54
1:E:524:MET:HG3	1:E:629:HIS:NE2	2.22	0.54
1:E:515:TRP:NE1	1:E:573:LEU:HD22	2.23	0.54
1:B:338:GLY:O	1:B:342:THR:HG21	2.08	0.54
1:A:361:VAL:HG21	1:A:391:LEU:HD13	1.90	0.53
1:F:274:ILE:O	1:F:274:ILE:CG2	2.57	0.53
1:F:528:VAL:HG13	1:F:536:CYS:O	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:495:TYR:OH	1:C:618:GLN:HG2	2.09	0.53
1:B:322:THR:HG22	1:B:323:LEU:HD23	1.90	0.53
1:D:274:ILE:CG2	1:D:274:ILE:O	2.57	0.53
1:B:495:TYR:OH	1:B:618:GLN:HG2	2.08	0.53
1:B:343:GLY:HA2	1:B:377:MET:HE3	1.91	0.53
1:C:374:ARG:O	1:C:377:MET:HG2	2.08	0.53
1:D:274:ILE:HD11	1:D:323:LEU:HD11	1.90	0.53
1:F:401:GLU:HA	1:F:656:LEU:O	2.09	0.53
1:F:502:PRO:HG3	1:F:510:PHE:CD1	2.43	0.53
1:C:322:THR:HG22	1:C:323:LEU:HD23	1.91	0.52
1:C:438:ILE:HD13	1:C:670:PRO:CB	2.39	0.52
1:A:502:PRO:HG3	1:A:510:PHE:CD1	2.43	0.52
1:A:656:LEU:CD1	1:A:686:VAL:HG11	2.31	0.52
1:D:524:MET:CE	1:D:589:GLN:NE2	2.71	0.52
1:D:682:CYS:O	1:D:686:VAL:HG23	2.10	0.52
1:E:524:MET:HE2	1:E:589:GLN:NE2	2.24	0.52
1:F:267:VAL:HB	1:F:274:ILE:HG22	1.90	0.52
1:F:515:TRP:NE1	1:F:573:LEU:HD22	2.24	0.52
1:C:274:ILE:CG2	1:C:274:ILE:O	2.58	0.52
1:C:487:ILE:HD13	1:C:672:MET:CE	2.40	0.52
1:D:665:LEU:HD22	1:D:672:MET:HE3	1.90	0.52
1:B:681:PHE:O	1:B:685:VAL:HG23	2.10	0.52
1:F:524:MET:HG3	1:F:629:HIS:NE2	2.24	0.52
1:A:340:GLY:O	1:A:344:THR:HG23	2.09	0.52
1:C:344:THR:HG21	1:C:383:GLN:HG2	1.92	0.52
1:A:426:LEU:HD12	1:A:426:LEU:H	1.75	0.51
1:A:611:ILE:HD13	1:A:647:LEU:HD12	1.93	0.51
1:F:343:GLY:HA2	1:F:377:MET:HE3	1.91	0.51
1:A:277:PHE:O	1:A:292:LEU:HD23	2.10	0.51
1:A:487:ILE:HD12	1:A:498:ALA:HB2	1.92	0.51
1:C:338:GLY:O	1:C:342:THR:HG21	2.10	0.51
1:A:433:LEU:HD11	1:A:662:VAL:HG11	1.91	0.51
1:C:460:ILE:HD12	1:C:632:ALA:HB1	1.92	0.51
1:A:153:LEU:HD22	1:A:175:ARG:CZ	2.41	0.51
1:D:564:ILE:HG21	1:D:610:LEU:HD13	1.92	0.51
1:E:503:LEU:HD13	1:E:505:HIS:HE1	1.75	0.51
1:A:460:ILE:HD12	1:A:632:ALA:HB1	1.93	0.51
1:F:654:GLY:O	1:F:655:LEU:HD23	2.10	0.51
1:A:217:ASP:N	1:A:217:ASP:OD2	2.44	0.50
1:A:524:MET:CE	1:A:589:GLN:NE2	2.74	0.50
1:D:564:ILE:CG2	1:D:610:LEU:HD13	2.40	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:277:PHE:O	1:C:292:LEU:HD23	2.12	0.50
1:D:620:GLN:C	1:D:622:GLY:H	2.14	0.50
1:A:487:ILE:HG21	1:A:641:ILE:HG21	1.94	0.50
1:A:524:MET:HE3	1:A:589:GLN:NE2	2.27	0.50
1:B:274:ILE:HD11	1:B:323:LEU:HD11	1.92	0.50
1:E:461:ILE:HG23	1:E:462:PRO:HD2	1.94	0.50
1:F:456:ARG:NH2	1:F:536:CYS:HA	2.27	0.50
1:A:239:ARG:O	1:A:240:LYS:CB	2.60	0.50
1:A:370:ILE:HD12	1:A:377:MET:HG3	1.94	0.50
1:B:274:ILE:O	1:B:274:ILE:CG2	2.60	0.50
1:F:618:GLN:O	1:F:622:GLY:HA2	2.11	0.50
1:A:665:LEU:HD22	1:A:672:MET:HE3	1.94	0.50
1:B:363:VAL:O	1:B:367:VAL:HG23	2.12	0.50
1:D:524:MET:HE2	1:D:589:GLN:HE22	1.72	0.50
1:D:267:VAL:HB	1:D:274:ILE:HG22	1.94	0.50
1:E:274:ILE:CG2	1:E:274:ILE:O	2.60	0.50
1:A:274:ILE:HD11	1:A:323:LEU:HD11	1.93	0.50
1:E:690:ILE:O	1:E:690:ILE:HG22	2.12	0.49
1:F:211:LYS:O	1:F:212:GLN:C	2.51	0.49
1:F:274:ILE:HD11	1:F:323:LEU:HD11	1.94	0.49
1:A:144:SER:O	1:A:146:HIS:N	2.43	0.49
1:D:351:MET:HE1	1:D:354:MET:HE1	1.94	0.49
1:D:495:TYR:OH	1:D:618:GLN:HG2	2.13	0.49
1:E:267:VAL:HB	1:E:274:ILE:HG22	1.94	0.49
1:E:338:GLY:O	1:E:342:THR:HG21	2.12	0.49
1:C:524:MET:HG3	1:C:629:HIS:NE2	2.26	0.49
1:D:351:MET:CE	1:D:354:MET:CE	2.91	0.49
1:A:267:VAL:HB	1:A:274:ILE:HG22	1.94	0.49
1:C:461:ILE:HG23	1:C:462:PRO:HD2	1.94	0.49
1:C:624:HIS:HB3	1:C:625:PRO:HD2	1.94	0.49
1:D:340:GLY:N	1:D:377:MET:O	2.46	0.49
1:D:635:GLY:N	1:D:672:MET:O	2.45	0.49
1:A:150:THR:HG22	1:A:172:ASP:CG	2.33	0.49
1:A:656:LEU:HD21	1:A:658:VAL:HG23	1.95	0.49
1:A:541:PRO:HB3	1:A:546:VAL:HG13	1.94	0.49
1:A:618:GLN:O	1:A:622:GLY:HA2	2.13	0.48
1:E:274:ILE:HD11	1:E:323:LEU:HD11	1.94	0.48
1:E:690:ILE:CG2	1:E:690:ILE:O	2.61	0.48
1:A:195:ILE:HD12	1:A:377:MET:HE1	1.96	0.48
1:F:551:ILE:CD1	1:F:573:LEU:HD13	2.44	0.48
1:F:656:LEU:HD21	1:F:658:VAL:HG23	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:487:ILE:HD12	1:C:498:ALA:HB2	1.95	0.48
1:C:487:ILE:HD13	1:C:672:MET:HE1	1.94	0.48
1:D:277:PHE:O	1:D:292:LEU:HD23	2.14	0.48
1:E:666:ARG:NH2	1:E:673:VAL:O	2.46	0.48
1:A:479:THR:HG22	1:A:479:THR:O	2.14	0.48
1:A:666:ARG:NH2	1:A:673:VAL:O	2.46	0.48
1:D:339:VAL:HG13	1:D:374:ARG:HH11	1.78	0.48
1:B:374:ARG:O	1:B:377:MET:HG2	2.14	0.48
1:A:402:LEU:HD21	1:A:656:LEU:HD13	1.96	0.48
1:B:211:LYS:O	1:B:212:GLN:C	2.52	0.48
1:B:487:ILE:HD12	1:B:498:ALA:CB	2.44	0.48
1:C:495:TYR:O	1:C:625:PRO:HA	2.13	0.48
1:E:339:VAL:HG13	1:E:374:ARG:NH1	2.23	0.48
1:A:433:LEU:CD1	1:A:662:VAL:CG1	2.91	0.48
1:F:397:TYR:O	1:F:398:GLY:C	2.52	0.48
1:D:487:ILE:HD12	1:D:498:ALA:CB	2.43	0.47
1:D:643:LEU:HD21	1:D:682:CYS:HA	1.95	0.47
1:E:502:PRO:HG3	1:E:510:PHE:CD1	2.48	0.47
1:D:541:PRO:HB3	1:D:546:VAL:HG13	1.96	0.47
1:A:524:MET:CE	1:A:540:TRP:CZ3	2.97	0.47
1:A:641:ILE:CG2	1:A:665:LEU:HD21	2.45	0.47
1:C:646:ILE:O	1:C:650:VAL:HG23	2.14	0.47
1:D:446:GLY:HA3	1:D:461:ILE:HD13	1.97	0.47
1:D:469:ILE:O	1:D:470:LEU:HD23	2.14	0.47
1:C:150:THR:HG22	1:C:172:ASP:OD2	2.14	0.47
1:B:524:MET:HG3	1:B:629:HIS:CE1	2.50	0.47
1:B:277:PHE:O	1:B:292:LEU:HD23	2.15	0.47
1:D:443:MET:HE3	1:D:461:ILE:HG22	1.97	0.47
1:A:487:ILE:HD13	1:A:672:MET:HE2	1.95	0.47
1:C:274:ILE:HD11	1:C:323:LEU:HD11	1.97	0.47
1:A:216:ASN:HD22	1:A:216:ASN:N	2.12	0.47
1:D:568:ASP:OD1	1:D:588:ARG:HD2	2.15	0.47
1:D:646:ILE:O	1:D:650:VAL:HG23	2.14	0.47
1:E:528:VAL:HG13	1:E:536:CYS:O	2.14	0.47
1:F:524:MET:HG3	1:F:629:HIS:CE1	2.49	0.47
1:B:524:MET:HE1	1:B:591:HIS:CE1	2.49	0.47
1:C:216:ASN:N	1:C:216:ASN:HD22	2.13	0.47
1:F:374:ARG:O	1:F:377:MET:HG2	2.15	0.47
1:B:665:LEU:HD22	1:B:672:MET:HE2	1.96	0.47
1:C:646:ILE:HD13	1:C:658:VAL:HG22	1.97	0.47
1:A:634:ALA:HB1	1:A:672:MET:HA	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:216:ASN:N	1:E:216:ASN:HD22	2.13	0.46
1:F:338:GLY:O	1:F:342:THR:HG21	2.15	0.46
1:A:526:THR:HG22	1:A:636:ARG:NH1	2.30	0.46
1:D:351:MET:HE2	1:D:354:MET:HE3	1.97	0.46
1:D:426:LEU:HD12	1:D:426:LEU:N	2.30	0.46
1:F:541:PRO:HB3	1:F:546:VAL:HG13	1.97	0.46
1:A:433:LEU:HD11	1:A:662:VAL:CG1	2.46	0.46
1:F:461:ILE:HG23	1:F:462:PRO:CD	2.44	0.46
1:F:124:ILE:CD1	1:F:388:TYR:HB3	2.46	0.46
1:D:469:ILE:C	1:D:470:LEU:HD23	2.35	0.46
1:B:267:VAL:HB	1:B:274:ILE:HG22	1.96	0.46
1:C:343:GLY:HA2	1:C:377:MET:HE3	1.98	0.46
1:E:656:LEU:CD1	1:E:686:VAL:CG1	2.85	0.46
1:C:274:ILE:HG22	1:C:274:ILE:O	2.16	0.46
1:A:555:ILE:O	1:A:555:ILE:HG23	2.16	0.46
1:B:520:HIS:NE2	1:B:585:ARG:HD3	2.30	0.46
1:C:438:ILE:HD13	1:C:670:PRO:HB2	1.98	0.46
1:D:338:GLY:O	1:D:342:THR:HG21	2.14	0.46
1:F:239:ARG:O	1:F:240:LYS:CB	2.63	0.46
1:A:564:ILE:N	1:A:564:ILE:HD13	2.31	0.46
1:A:641:ILE:HG22	1:A:665:LEU:HD21	1.97	0.46
1:D:564:ILE:HG21	1:D:610:LEU:CD1	2.45	0.46
1:E:211:LYS:O	1:E:212:GLN:C	2.54	0.46
1:C:124:ILE:CD1	1:C:388:TYR:HB3	2.46	0.45
1:E:277:PHE:O	1:E:292:LEU:HD23	2.15	0.45
1:E:601:PRO:HG2	1:E:681:PHE:CZ	2.50	0.45
1:F:460:ILE:HD12	1:F:632:ALA:HB1	1.98	0.45
1:B:433:LEU:HD13	1:B:662:VAL:HG11	1.98	0.45
1:D:443:MET:CE	1:D:461:ILE:HG22	2.46	0.45
1:B:195:ILE:HD12	1:B:377:MET:HE1	1.98	0.45
1:B:521:THR:HB	1:B:626:ILE:HG23	1.98	0.45
1:C:503:LEU:HB2	1:C:506:THR:HG23	1.96	0.45
1:D:142:LEU:HD23	1:D:364:PHE:CE1	2.50	0.45
1:C:568:ASP:OD1	1:C:588:ARG:HD3	2.17	0.45
1:D:274:ILE:HG22	1:D:274:ILE:O	2.16	0.45
1:D:351:MET:CE	1:D:354:MET:HE1	2.46	0.45
1:C:524:MET:HE1	1:C:540:TRP:CH2	2.51	0.45
1:E:495:TYR:OH	1:E:618:GLN:HG2	2.17	0.45
1:A:175:ARG:CZ	1:A:177:ILE:HG22	2.47	0.45
1:B:216:ASN:HD22	1:B:216:ASN:N	2.14	0.45
1:A:515:TRP:CE2	1:A:573:LEU:HD22	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:219:TRP:CE2	1:B:261:VAL:HG21	2.52	0.45
1:C:142:LEU:HD23	1:C:364:PHE:CE1	2.52	0.45
1:F:361:VAL:HG21	1:F:391:LEU:HD13	1.99	0.45
1:D:434:THR:HG22	1:D:434:THR:O	2.16	0.45
1:F:524:MET:HE1	1:F:540:TRP:CH2	2.52	0.45
1:F:552:THR:C	1:F:553:ILE:HD13	2.38	0.45
1:C:485:SER:HB2	1:C:669:ARG:HD2	1.98	0.45
1:F:150:THR:CG2	1:F:172:ASP:OD2	2.63	0.45
1:F:153:LEU:HD22	1:F:175:ARG:CZ	2.47	0.45
1:A:211:LYS:O	1:A:212:GLN:C	2.54	0.44
1:A:566:ILE:O	1:A:566:ILE:HG22	2.16	0.44
1:B:274:ILE:HG22	1:B:274:ILE:O	2.18	0.44
1:D:676:LEU:HD12	1:D:676:LEU:O	2.18	0.44
1:B:643:LEU:HD11	1:B:685:VAL:HG21	1.99	0.44
1:C:524:MET:HE2	1:C:540:TRP:CZ3	2.52	0.44
1:E:487:ILE:HD12	1:E:498:ALA:HB2	1.99	0.44
1:F:274:ILE:O	1:F:274:ILE:HG22	2.17	0.44
1:B:624:HIS:HB3	1:B:625:PRO:CD	2.44	0.44
1:D:624:HIS:HB3	1:D:625:PRO:CD	2.47	0.44
1:B:514:ILE:HD11	1:B:627:THR:HG21	1.98	0.44
1:D:487:ILE:HD13	1:D:672:MET:HE1	1.98	0.44
1:D:526:THR:HG22	1:D:636:ARG:HH11	1.83	0.44
1:E:175:ARG:CZ	1:E:177:ILE:HG22	2.48	0.44
1:A:528:VAL:HG13	1:A:536:CYS:O	2.18	0.44
1:A:636:ARG:O	1:A:637:THR:C	2.55	0.44
1:D:216:ASN:HD22	1:D:216:ASN:N	2.15	0.44
1:A:656:LEU:CD2	1:A:658:VAL:HG23	2.47	0.43
1:E:150:THR:CG2	1:E:172:ASP:OD2	2.62	0.43
1:F:495:TYR:O	1:F:625:PRO:HA	2.18	0.43
1:F:524:MET:HE2	1:F:589:GLN:HE22	1.81	0.43
1:C:553:ILE:CD1	1:C:571:VAL:HG13	2.47	0.43
1:D:444:ARG:O	1:D:445:THR:C	2.55	0.43
1:F:277:PHE:O	1:F:292:LEU:HD23	2.19	0.43
1:F:435:ASN:HD22	1:F:435:ASN:N	2.16	0.43
1:A:392:LEU:HD11	1:A:396:LEU:HD21	2.01	0.43
1:E:507:VAL:HG11	1:E:537:TYR:CE2	2.54	0.43
1:A:123:GLU:HA	1:A:126:ILE:HD12	2.00	0.43
1:F:175:ARG:CZ	1:F:177:ILE:HG22	2.48	0.43
1:F:142:LEU:HD23	1:F:364:PHE:CE1	2.54	0.43
1:F:541:PRO:HG3	1:F:546:VAL:HG22	2.00	0.43
1:B:339:VAL:HG13	1:B:374:ARG:HH11	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:374:ARG:O	1:D:377:MET:HG2	2.18	0.43
1:D:433:LEU:HD13	1:D:662:VAL:HG12	2.00	0.43
1:D:568:ASP:OD1	1:D:588:ARG:CD	2.66	0.43
1:E:274:ILE:O	1:E:274:ILE:HG22	2.18	0.43
1:E:662:VAL:HG13	1:E:673:VAL:CG2	2.48	0.43
1:E:482:ILE:O	1:E:482:ILE:HG23	2.18	0.43
1:E:564:ILE:CG2	1:E:610:LEU:HD13	2.47	0.43
1:B:482:ILE:HG23	1:B:484:ALA:HB3	1.99	0.43
1:C:267:VAL:HB	1:C:274:ILE:HG22	1.99	0.43
1:C:344:THR:HG22	1:C:378:VAL:HG13	2.00	0.43
1:C:600:ILE:HD13	1:C:681:PHE:HB2	2.01	0.43
1:D:175:ARG:CZ	1:D:177:ILE:HG22	2.49	0.43
1:F:438:ILE:HD11	1:F:671:HIS:CE1	2.53	0.43
1:B:487:ILE:HD13	1:B:672:MET:CE	2.48	0.43
1:C:555:ILE:HG23	1:C:555:ILE:O	2.18	0.43
1:E:350:ALA:O	1:E:353:ALA:HB3	2.19	0.43
1:E:555:ILE:O	1:E:555:ILE:HG23	2.19	0.43
1:E:524:MET:CG	1:E:629:HIS:CE1	3.02	0.43
1:A:153:LEU:CD1	1:A:175:ARG:NH1	2.76	0.43
1:B:135:PHE:CG	1:B:385:THR:HG22	2.53	0.43
1:C:676:LEU:HD12	1:C:676:LEU:O	2.19	0.43
1:A:471:SER:O	1:A:512:ARG:NH2	2.52	0.42
1:C:572:THR:HG23	1:C:584:VAL:HG23	2.01	0.42
1:B:350:ALA:O	1:B:353:ALA:HB3	2.19	0.42
1:E:590:PHE:CD1	1:E:614:VAL:HG22	2.55	0.42
1:F:555:ILE:HG23	1:F:555:ILE:O	2.18	0.42
1:A:426:LEU:HD22	1:C:147:ILE:CD1	2.49	0.42
1:B:524:MET:CG	1:B:629:HIS:CE1	3.03	0.42
1:C:306:VAL:HB	1:C:307:PRO:HD2	2.01	0.42
1:D:350:ALA:O	1:D:353:ALA:HB3	2.20	0.42
1:B:487:ILE:HD12	1:B:498:ALA:HB2	2.01	0.42
1:B:643:LEU:HD21	1:B:682:CYS:HA	2.02	0.42
1:C:656:LEU:O	1:C:656:LEU:HD23	2.18	0.42
1:E:113:PHE:N	1:E:113:PHE:CD2	2.88	0.42
1:E:507:VAL:HG11	1:E:537:TYR:CD2	2.54	0.42
1:A:124:ILE:CD1	1:A:388:TYR:HB3	2.50	0.42
1:A:150:THR:HG22	1:A:172:ASP:HB2	2.02	0.42
1:A:219:TRP:CE2	1:A:261:VAL:HG21	2.54	0.42
1:A:371:ARG:HG2	1:A:377:MET:H	1.83	0.42
1:E:524:MET:HE1	1:E:540:TRP:CH2	2.55	0.42
1:D:211:LYS:O	1:D:212:GLN:C	2.58	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:351:MET:CE	1:D:354:MET:HE3	2.49	0.42
1:E:178:LEU:HD21	1:E:221:MET:HB2	2.02	0.42
1:F:504:ALA:O	1:F:507:VAL:HG22	2.20	0.42
1:A:347:VAL:CG1	1:A:387:ILE:HD13	2.48	0.42
1:B:276:LYS:HG2	1:C:584:VAL:HG11	2.01	0.42
1:C:175:ARG:CZ	1:C:177:ILE:HG22	2.50	0.42
1:F:553:ILE:HD12	1:F:571:VAL:HG22	2.01	0.42
1:B:658:VAL:O	1:B:661:ALA:HB3	2.20	0.42
1:D:539:TYR:OH	1:D:589:GLN:NE2	2.52	0.42
1:E:618:GLN:O	1:E:622:GLY:HA2	2.20	0.42
1:F:347:VAL:CG1	1:F:387:ILE:HD13	2.47	0.42
1:C:211:LYS:O	1:C:212:GLN:C	2.58	0.41
1:D:397:TYR:O	1:D:398:GLY:C	2.59	0.41
1:D:487:ILE:HD13	1:D:672:MET:HE2	2.00	0.41
1:E:355:MET:CE	1:E:391:LEU:HD22	2.50	0.41
1:F:551:ILE:HD13	1:F:573:LEU:HD13	2.01	0.41
1:F:656:LEU:C	1:F:656:LEU:HD23	2.41	0.41
1:C:515:TRP:CE2	1:C:573:LEU:HD22	2.54	0.41
1:F:371:ARG:NH2	1:F:378:VAL:O	2.53	0.41
1:F:487:ILE:HD12	1:F:498:ALA:HB2	2.02	0.41
1:F:647:LEU:HD22	1:F:689:PHE:CD2	2.55	0.41
1:B:496:PHE:CE2	1:B:626:ILE:HD12	2.55	0.41
1:C:526:THR:HG22	1:C:636:ARG:NH1	2.35	0.41
1:D:150:THR:HG23	1:D:152:GLU:H	1.85	0.41
1:A:274:ILE:CG2	1:A:274:ILE:O	2.68	0.41
1:C:507:VAL:HG12	1:C:539:TYR:HB3	2.02	0.41
1:A:433:LEU:HD13	1:A:662:VAL:CG1	2.50	0.41
1:C:444:ARG:O	1:C:445:THR:C	2.59	0.41
1:F:178:LEU:HD21	1:F:221:MET:HB2	2.02	0.41
1:B:175:ARG:CZ	1:B:177:ILE:HG22	2.50	0.41
1:B:355:MET:CE	1:B:391:LEU:HD22	2.51	0.41
1:C:350:ALA:O	1:C:353:ALA:HB3	2.20	0.41
1:C:482:ILE:HD13	1:C:513:MET:SD	2.61	0.41
1:D:355:MET:CE	1:D:391:LEU:HD22	2.51	0.41
1:D:524:MET:HE1	1:D:540:TRP:CH2	2.55	0.41
1:F:350:ALA:O	1:F:353:ALA:HB3	2.21	0.41
1:C:643:LEU:HD21	1:C:682:CYS:HA	2.02	0.41
1:E:124:ILE:CD1	1:E:388:TYR:HB3	2.51	0.41
1:B:347:VAL:CG1	1:B:387:ILE:HD13	2.50	0.41
1:D:570:LEU:HD23	1:D:586:VAL:HG22	2.03	0.41
1:B:482:ILE:HD13	1:B:513:MET:SD	2.60	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:178:LEU:HD21	1:D:221:MET:HB2	2.03	0.41
1:B:276:LYS:HG2	1:C:584:VAL:CG1	2.51	0.40
1:B:394:TYR:O	1:B:394:TYR:CG	2.74	0.40
1:D:647:LEU:O	1:D:648:GLU:C	2.58	0.40
1:E:592:PHE:CD1	1:E:610:LEU:HD22	2.56	0.40
1:C:347:VAL:CG1	1:C:387:ILE:HD13	2.51	0.40
1:C:438:ILE:HD13	1:C:670:PRO:HB3	2.03	0.40
1:C:524:MET:CE	1:C:589:GLN:NE2	2.85	0.40
1:C:524:MET:CE	1:C:540:TRP:CZ3	3.05	0.40
1:F:153:LEU:HD22	1:F:175:ARG:NH2	2.36	0.40
1:F:551:ILE:CG2	1:F:571:VAL:HG13	2.51	0.40
1:A:433:LEU:HD13	1:A:662:VAL:HG11	2.01	0.40
1:D:351:MET:HE1	1:D:354:MET:CE	2.50	0.40
1:E:521:THR:HB	1:E:626:ILE:HG23	2.03	0.40
1:F:216:ASN:N	1:F:216:ASN:HD22	2.18	0.40
1:A:394:TYR:O	1:A:394:TYR:CG	2.74	0.40
1:D:461:ILE:HG23	1:D:462:PRO:HD2	2.03	0.40
1:E:397:TYR:O	1:E:398:GLY:C	2.59	0.40
1:F:340:GLY:N	1:F:377:MET:O	2.55	0.40
1:C:355:MET:CE	1:C:391:LEU:HD22	2.51	0.40
1:C:454:LYS:O	1:C:500:GLN:NE2	2.53	0.40
1:D:555:ILE:O	1:D:555:ILE:HG23	2.21	0.40
1:E:347:VAL:CG1	1:E:387:ILE:HD13	2.50	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	523/599 (87%)	479 (92%)	40 (8%)	4 (1%)	19 58
1	B	527/599 (88%)	486 (92%)	37 (7%)	4 (1%)	19 58

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	C	527/599 (88%)	493 (94%)	31 (6%)	3 (1%)	25	64
1	D	525/599 (88%)	484 (92%)	37 (7%)	4 (1%)	19	58
1	E	527/599 (88%)	492 (93%)	32 (6%)	3 (1%)	25	64
1	F	528/599 (88%)	498 (94%)	23 (4%)	7 (1%)	12	47
All	All	3157/3594 (88%)	2932 (93%)	200 (6%)	25 (1%)	19	58

All (25) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	623	ASN
1	A	398	GLY
1	B	398	GLY
1	C	398	GLY
1	D	398	GLY
1	D	622	GLY
1	E	398	GLY
1	E	483	ASN
1	F	240	LYS
1	F	398	GLY
1	F	483	ASN
1	A	145	GLY
1	E	582	GLU
1	F	439	MET
1	F	561	SER
1	A	483	ASN
1	B	236	LEU
1	C	603	GLU
1	D	603	GLU
1	A	307	PRO
1	B	145	GLY
1	B	603	GLU
1	D	310	PRO
1	F	482	ILE
1	F	310	PRO

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	358/535 (67%)	339 (95%)	19 (5%)	22	58
1	B	352/535 (66%)	331 (94%)	21 (6%)	19	54
1	C	348/535 (65%)	333 (96%)	15 (4%)	29	64
1	D	340/535 (64%)	322 (95%)	18 (5%)	22	58
1	E	341/535 (64%)	327 (96%)	14 (4%)	30	66
1	F	336/535 (63%)	320 (95%)	16 (5%)	25	61
All	All	2075/3210 (65%)	1972 (95%)	103 (5%)	24	60

All (103) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	128	SER
1	A	150	THR
1	A	153	LEU
1	A	177	ILE
1	A	193	SER
1	A	211	LYS
1	A	217	ASP
1	A	273	THR
1	A	294	SER
1	A	296	LEU
1	A	308	PHE
1	A	356	HIS
1	A	402	LEU
1	A	461	ILE
1	A	467	ARG
1	A	507	VAL
1	A	564	ILE
1	A	572	THR
1	A	588	ARG
1	B	135	PHE
1	B	177	ILE
1	B	193	SER
1	B	211	LYS
1	B	216	ASN
1	B	273	THR
1	B	294	SER
1	B	296	LEU

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Mol	Chain	Res	Type
1	B	308	PHE
1	B	344	THR
1	B	356	HIS
1	B	374	ARG
1	B	377	MET
1	B	447	ASN
1	B	461	ILE
1	B	467	ARG
1	B	507	VAL
1	B	564	ILE
1	B	572	THR
1	B	588	ARG
1	B	595	TRP
1	C	177	ILE
1	C	193	SER
1	C	273	THR
1	C	296	LEU
1	C	308	PHE
1	C	356	HIS
1	C	461	ILE
1	C	479	THR
1	C	499	THR
1	C	507	VAL
1	C	564	ILE
1	C	572	THR
1	C	588	ARG
1	C	595	TRP
1	C	615	GLN
1	D	135	PHE
1	D	150	THR
1	D	177	ILE
1	D	180	GLN
1	D	193	SER
1	D	273	THR
1	D	296	LEU
1	D	308	PHE
1	D	356	HIS
1	D	461	ILE
1	D	467	ARG
1	D	507	VAL
1	D	564	ILE
1	D	572	THR

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Mol	Chain	Res	Type
1	D	588	ARG
1	D	595	TRP
1	D	623	ASN
1	D	626	ILE
1	E	177	ILE
1	E	193	SER
1	E	273	THR
1	E	294	SER
1	E	296	LEU
1	E	308	PHE
1	E	356	HIS
1	E	458	ILE
1	E	461	ILE
1	E	467	ARG
1	E	479	THR
1	E	564	ILE
1	E	572	THR
1	E	630	CYS
1	F	153	LEU
1	F	177	ILE
1	F	193	SER
1	F	273	THR
1	F	294	SER
1	F	296	LEU
1	F	308	PHE
1	F	356	HIS
1	F	374	ARG
1	F	434	THR
1	F	435	ASN
1	F	461	ILE
1	F	542	THR
1	F	564	ILE
1	F	572	THR
1	F	595	TRP

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (27) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	216	ASN
1	A	538	GLN
1	B	216	ASN
1	B	447	ASN

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Mol	Chain	Res	Type
1	B	538	GLN
1	C	146	HIS
1	C	180	GLN
1	C	216	ASN
1	C	376	GLN
1	C	379	GLN
1	C	538	GLN
1	C	589	GLN
1	C	624	HIS
1	D	155	ASN
1	D	216	ASN
1	D	327	HIS
1	D	538	GLN
1	D	589	GLN
1	D	623	ASN
1	D	624	HIS
1	E	216	ASN
1	E	379	GLN
1	E	538	GLN
1	E	624	HIS
1	F	435	ASN
1	F	538	GLN
1	F	671	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

Of 12 ligands modelled in this entry, 12 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ > 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q < 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ > 2	OWAB(Å ²)	Q < 0.9
1	A	537/599 (89%)	-0.03	12 (2%) 62 48	57, 63, 66, 69	0
1	B	541/599 (90%)	-0.02	15 (2%) 53 37	57, 63, 66, 69	0
1	C	541/599 (90%)	0.00	13 (2%) 59 44	57, 63, 66, 69	0
1	D	539/599 (89%)	0.07	16 (2%) 50 34	57, 63, 66, 69	0
1	E	541/599 (90%)	-0.06	11 (2%) 65 51	57, 63, 66, 69	0
1	F	542/599 (90%)	0.05	20 (3%) 41 26	57, 63, 66, 69	0
All	All	3241/3594 (90%)	0.00	87 (2%) 54 39	57, 63, 66, 69	0

All (87) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	405	SER	4.1
1	F	404	VAL	3.9
1	C	126	ILE	3.6
1	D	404	VAL	3.4
1	D	362	ASP	3.3
1	A	406	SER	3.2
1	F	406	SER	3.2
1	D	545	SER	3.1
1	E	478	TYR	3.1
1	D	405	SER	3.1
1	E	405	SER	3.1
1	E	185	PRO	3.0
1	D	441	GLU	3.0
1	F	435	ASN	2.9
1	A	115	ILE	2.9
1	B	150	THR	2.9
1	F	438	ILE	2.9
1	B	439	MET	2.9
1	C	446	GLY	2.9

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Mol	Chain	Res	Type	RSRZ
1	C	239	ARG	2.8
1	F	112	TYR	2.7
1	C	238	GLU	2.7
1	C	240	LYS	2.7
1	A	185	PRO	2.7
1	C	186	CYS	2.7
1	D	114	PRO	2.6
1	F	185	PRO	2.6
1	C	303	ASP	2.6
1	D	546	VAL	2.6
1	E	250	ASP	2.6
1	F	472	MET	2.6
1	B	406	SER	2.6
1	F	241	GLU	2.6
1	F	581	GLY	2.5
1	B	438	ILE	2.5
1	B	534	ASP	2.5
1	B	116	PRO	2.5
1	A	546	VAL	2.5
1	C	442	ASN	2.5
1	B	186	CYS	2.5
1	D	439	MET	2.4
1	B	405	SER	2.4
1	D	478	TYR	2.4
1	D	135	PHE	2.4
1	D	112	TYR	2.4
1	F	268	VAL	2.4
1	D	622	GLY	2.3
1	C	441	GLU	2.3
1	B	185	PRO	2.3
1	E	267	VAL	2.3
1	B	244	CYS	2.3
1	C	405	SER	2.3
1	C	406	SER	2.3
1	D	200	GLU	2.3
1	F	434	THR	2.3
1	A	114	PRO	2.3
1	A	253	CYS	2.3
1	F	240	LYS	2.3
1	B	533	GLN	2.3
1	B	478	TYR	2.2
1	A	545	SER	2.2

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Mol	Chain	Res	Type	RSRZ
1	E	113	PHE	2.2
1	D	435	ASN	2.2
1	B	542	THR	2.2
1	C	356	HIS	2.2
1	F	505	HIS	2.2
1	A	240	LYS	2.2
1	E	119	HIS	2.2
1	B	362	ASP	2.2
1	D	356	HIS	2.2
1	E	438	ILE	2.1
1	E	236	LEU	2.1
1	D	328	ALA	2.1
1	E	239	ARG	2.1
1	F	138	GLU	2.1
1	A	478	TYR	2.1
1	F	689	PHE	2.1
1	F	119	HIS	2.1
1	A	126	ILE	2.1
1	A	184	ILE	2.1
1	A	239	ARG	2.1
1	F	113	PHE	2.0
1	F	441	GLU	2.0
1	E	184	ILE	2.0
1	F	266	CYS	2.0
1	C	236	LEU	2.0
1	B	117	VAL	2.0

6.2 Non-standard residues in protein, DNA, RNA chains [\(i\)](#)

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates [\(i\)](#)

There are no carbohydrates in this entry.

6.4 Ligands [\(i\)](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
2	CL	B	1694	1/1	0.85	0.11	82,82,82,82	0
2	CL	A	1692	1/1	0.89	0.20	65,65,65,65	0
2	CL	B	1693	1/1	0.92	0.24	74,74,74,74	0
2	CL	B	1692	1/1	0.93	0.17	41,41,41,41	0
2	CL	D	1692	1/1	0.93	0.21	78,78,78,78	0
2	CL	F	1692	1/1	0.94	0.15	68,68,68,68	0
2	CL	F	1693	1/1	0.96	0.14	43,43,43,43	0
2	CL	D	1693	1/1	0.96	0.16	40,40,40,40	0
2	CL	A	1693	1/1	0.97	0.18	51,51,51,51	0
2	CL	E	1692	1/1	0.97	0.32	66,66,66,66	0
2	CL	E	1693	1/1	0.97	0.19	40,40,40,40	0
2	CL	C	1692	1/1	0.97	0.14	43,43,43,43	0

6.5 Other polymers [i](#)

There are no such residues in this entry.